December 15, 1999

Mr. Kevin Adler
Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Groundwater Treatment System
Quarterly Monitoring Report – Third Quarter 1999
ACS NPL Site

Dear Mr. Adler:

Please find enclosed two copies of the Groundwater Treatment System, Quarterly Monitoring Report, Third Quarter 1999 for the American Chemical Service NPL Site in Griffith, Indiana. This report is submitted in accordance with the PGCS Performance Standard Verification Plan, April 1997.

We are also sending two copies of this report to IDEM and two copies of this report to Black & Veatch Waste Systems. If you need additional copies of this report please let me know and we can forward them to you, or whomever you specify.

Sincerely,

for Peter J. Vagt, Ph.D., CPG
Project Manager

cc: S. Grady (2 copies of each report)
S. Mrkvicka, B&V (2 copies of each report)
ACS Technical Committee (1 copy of each report to each member)

RAA/emp/RAA
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1252042.251801

2055 Diehl Road
Suite 300
Warrenville, Illinois
60555

630 836 8460
630 836 8551

GROUNDWATER TREATMENT SYSTEM

QUARTERLY MONITORING REPORT
THIRD QUARTER 1999

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

Montgomery Watson File No. 1252057

Prepared For:

American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana

Prepared By:

Montgomery Watson
27755 Diehl Road, Suite 300
Warrenville, Illinois 60555

December 1999

MONTGOMERY WATSON

GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
THIRD QUARTER 1999

AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA

Prepared For:

American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana

Prepared by: _____ DECEMBER 14, 1999
Robert A. Adams, EIT — Date
Project Engineer

Approved by: _____ 12/14/99
Thomas A. Blair, P.E. — Date
Project Manager

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1.0 INTRODUCTION

Montgomery Watson, on behalf of the ACS RD/RA Executive Committee, commenced operation of an on-site groundwater treatment system at the American Chemical Service NPL Site (ACS Site) in Griffith, Indiana on March 13, 1997. The system was designed to treat groundwater from the perimeter groundwater containment system (PGCS) and certain volumes of water from the Barrier Wall Extraction System (BWES). The treatment consists of a phase-separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, an air stripper to remove methylene chloride and other organics, a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater. The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system, in accordance with Agency approvals.

The 22,000-gallon storage tank (fract tank) used during the full-scale pilot study conducted at the treatment plant from the end of July to the middle of November 1998 continued to be used for additional volatile organic compound (VOC) reduction during this reporting period. The rest of the components from the full-scale pilot study were removed in November 1998. The results of the full-scale pilot study were used to design upgrades to the existing groundwater treatment plant. The groundwater treatment plant is being upgraded to handle the anticipated higher levels of organic contamination present in the BWES groundwater. These upgrades, currently under construction, will include phase-separation of free-organic product and oil and grease, aerated equalization of collected groundwater, and activated sludge treatment to reduce the biological oxygen demand (BOD_5) and chemical oxygen demand (COD) in the collected groundwater.

This Groundwater Treatment System report summarizes effluent analytical data and water level gauging data collected from July 1999 through September 1999.

2.0 COMPLIANCE MONITORING

2.1 INTRODUCTION

Effluent samples were periodically collected from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by Indiana Department of Environmental Management (IDEM) and United States Environmental Protection Agency (U.S. EPA). To be conservative, the sampling frequency for the effluent samples is currently in exceedence of the requirements contained in the Agency-approved Performance Standard Verification Plan (PSVP) and presented in Table 2.2. During the previous reporting periods, the effluent compliance samples were collected on a monthly basis. The samples will continue to be collected on a monthly basis until the treatment system is operating in a relatively steady state after completion and startup of the groundwater treatment plant upgrades.

Sampling and analyses were performed in accordance with the Agency-approved PSVP Quality Assurance Project Plan (QAPP) prepared by Montgomery Watson for the ACS RD/RA Executive Committee in April 1997. The following paragraphs present details on sampling and analyses, and also summarize the analytical data for the treatment system effluent.

2.2 SAMPLING AND ANALYSES

Effluent samples are collected on a monthly basis. For this reporting period, the samples were collected on the following dates:

Monitoring Period	Sample Date
Month 26	7/19/99
Month 27	8/12/99
Month 28	9/1/99

Effluent samples were collected directly from a sample tap on the effluent line just before it exits the groundwater treatment system building. All effluent samples were placed in contaminant-free containers, as specified in the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. In accordance with the approved QAPP, samples were analyzed by the following analytical methods:

Parameter	Analytical Method
VOCs	SW-846 8260B
SVOCs	SW-846 8270C
Pentachlorophenol	SW-846 8270C and SIM
Pesticides/PCBs	EPA 608
Metals (Excluding Mercury)	SW-846 6010
General Water Quality Parameters (TSS and BOD-5)	EPA 160.2 and 405.1
Mercury	SW-846 7470
pH	EPA 150.1

2.3 ANALYTICAL RESULTS

For this monitoring period the system effluent was compliant with the discharge limits presented in Table 2.1. There were no exceedences reported for the Third Quarter 1999 sampling. A comparison of the analytical data collected during the monitoring period with the discharge limits is presented in Table 2.3. Detailed analytical reports are attached in Appendix A.

2.4 GENERAL CORRECTIVE MEASURES

Based on the number of exceedences and apparent external causes during the last sampling period (Second Quarter 1999), we inspected the interior of the 10,000-lb activated carbon cells. The inspection indicated that corrosion was present on the inside of both units including the distribution plates. This corrosion may have been interfering with the adsorption process by allowing the groundwater to short circuit through the GAC unit(s). The GAC units were subsequently sandblasted and cleaned on the interior to remove the corrosion. No exceedences have been observed since the repairs were made.

3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

There were no long term operational problems with the groundwater treatment system during this quarter. There were not any significant modifications to the treatment system. The only change from historic operating conditions was the continued use of the equalization/aeration tank from the full-scale activated sludge pilot study. The system has been operating in the current configuration with the equalization/aeration tank since November 1998. This configuration was discussed in the quarterly monitoring report for the First Quarter 1999.

Construction of the GWTP upgrades began in August 1999. The work performed during this monitoring period included:

a) Installation of the secondary containment system for the activated sludge plant and aeration/equalization tank
b) Performed subgrade and concrete work for the activated sludge plant
c) Erection of the activated sludge plant
d) Procurement of process equipment

Additional GWTP upgrade work to be completed during future monitoring periods includes:

a) Procurement of process equipment
b) Subgrade and concrete work for the gravity phase-separator tank and building expansion foundation
c) Erection of the activated sludge plant
d) Erection of the gravity phase-separator
e) Erection of the treatment plant building expansion
f) Installation of the catalytic oxidizer-scrubber unit
g) Installation of the process pumps and piping
h) Installation of the electrical and control lines and associated upgrades
i) Upgrade the programmable logic control center
j) Start-up the upgraded system after completion of the upgrades

4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode continuously throughout this monitoring period. In "auto" mode, each of the PGCS extraction wells are set to turn on or off automatically based on water levels within tank T-2. This mode is used to control the flowrate through the treatment system. In accordance with the PSVP for the Site, a discussion on the effect of the PGCS and BWES on the water table near the Site is presented in each quarterly monitoring report. This section presents a discussion on the groundwater elevation findings during the months of July through September 1999. Groundwater elevation measurements were collected throughout the Site on September 13, 1999. However, to keep track of the groundwater table inside the barrier wall, levels were collected from the BWES piezometers (P-3, P-32, P-49 and P-96) on a regular basis. The levels from these four piezometers are shown in the table below.

	Water Table Elevation			
Date	**P-3**	**P-32**	**P-49**	**P-96**
July 9, 1999	634.47	635.22	634.98	632.39
July 16, 1999	634.97	634.92	634.58	633.89
July 30, 1999	634.87	634.92	634.88	634.39
August 6, 1999	634.77	634.72	634.28	631.19
August 20, 1999	634.77	634.92	634.78	634.29
September 3, 1999	634.77	634.92	634.68	633.59
September 13, 1999	634.62	634.64	634.38	633.84
September 24, 1999	634.57	634.42	634.28	633.99

These levels indicate that during the reporting period, the water table inside the barrier wall has been maintained at a fairly constant level (approximately 634 to 635) by continued operation of the BWES. These levels have been maintained at a constant level to minimize the amount of BWES groundwater that needs to be treated and maintain the water table at a low enough level to prevent overtopping of the barrier wall. The water elevations inside the barrier wall are depicted graphically on Figure 4.1. P-96 is in close proximity to BWES extraction trench EW-11, and therefore fluctuates in direct response to the operation of the pump in EW-11.

The influence of the PGCS trench on groundwater flow patterns is illustrated by Figure 4.2 (September 1999). The direction of groundwater flow was generally from east to west during these months, with an inward gradient toward the PGCS.

The barrier wall was constructed to isolate a highly contaminated zone under the site and the BWES was installed to collect the contaminated water within the barrier wall. A series of 16 piezometers was installed in eight pairs, one piezometer of each pair on either side of the barrier wall at each of the BWES trench locations, to allow measurement and tracking of water level measurements. In order to ensure that the barrier wall was serving its

designed function, groundwater elevations in these piezometers, both inside and outside the barrier wall, are monitored.

Groundwater elevations inside and outside the barrier wall were monitored on September 13, 1999. Figure 4.3 illustrates these groundwater elevations. Fluctuations in the gradient across the barrier wall occur due to seasonal groundwater conditions, pumping rates from the BWES, and infiltration through the Site covers. However, the groundwater elevations measured in the piezometers indicated that the elevations inside the barrier wall were all 2.78 feet to 6.08 feet higher than the elevations outside the barrier wall. These data demonstrate that the barrier wall is successfully performing the intended function of isolating and containing the groundwater from the known source areas of the Site inside the barrier wall. Water levels from the piezometers on September 13, 1999 are presented below:

Piezometer	Location[1]	Water Level	Difference[2]
P-93	Outside	628.30	6.08
P-49[3]	Inside	634.38	
P-95	Outside	627.78	6.06
P-96	Inside	633.84	
P-97	Outside	628.44	6.04
P-98	Inside	634.48	
P-99	Outside	630.76	4.07
P-100	Inside	634.83	
P-101	Outside	631.50	3.42
P-102	Inside	634.92	
P-103	Outside	Dry[4]	NA
P-104	Inside	635.20	
P-105	Outside	631.51	2.78
P-106	Inside	634.29	
P-107	Outside	629.97	4.40
P-108	Inside	634.37	

Notes:

1. Location refers inside or outside the barrier wall.
2. A positive value indicates that the water level is higher within the barrier wall. A negative value would indicate that the water level is lower within the barrier wall.
3. Piezometer P-94 was damaged and could not be measured this monitoring period. Therefore the groundwater level from piezometer P-49 was used to calculate the hydraulic gradient. Piezometer P-94 will be repaired for future monitoring events.
4. Piezometer P-103 was dry and could not be measured this monitoring period. The total depth of P-103 is 13.44 feet below the top of the well casing indicating that the groundwater at P-103 was less than 631.53 feet above mean sea level.

NA Value could not be calculated from single measurement.

It is not the intent to continuously operate with the higher groundwater levels inside the barrier wall. The groundwater levels within the barrier wall during this monitoring period were balanced to maintain a safe level that would not over flow the barrier wall while minimizing the amount of groundwater within the barrier wall that requires collection and treatment resulting in excessive GAC usage. Upon completion of the groundwater

treatment plant upgrades, the groundwater pumping rate of the BWES will be increased to lower the water table for implementation of the in-situ soil vapor extraction systems to be installed in accordance with the Final Remedy.

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Table 2.1
Groundwater Treatment System Effluent Discharge Limits
American Chemical Service NPL Site
Griffith, Indiana

Groundwater Quality Parameter	Effluent Standard (Limit)
General Water Quality Parameters	
PH	6 - 9 S.U.
BOD-5	30 mg/L
TSS	30 mg/L
Inorganics	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
Volatile Organics	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 – Dichlorobenzene	NE
1,1 – Dichloroethane	NE
1,2 – Dichloroethene – cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 – Methyl - 2 – pentanone	15 µg/L
Semi-Volatile Organics	
bis(2 – Chloroethyl) ether	9.6 µg/L
bis(2 – Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 – Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
PCBs	
PCBs	0.00056 µg/L (w/DL = 0.1 to 0.9)

Notes
NE = No effluent limit established.
DL = Detection limit

Table 2.2
Sampling Frequency Scheme
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Analytes	Cumulative Time From Startup[1]	Frequency[3]
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 to 180 days	Once per month
	181 days onward[2]	Once per quarter
VOCs	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 days onward[2]	Once per month
PCBs	0 to 7 days	Once
	8 to 30 days	Once
	31 to 180 days	Twice
	181 days onward[2]	Once per quarter
PCBs in Sediment (one location)	–	Once per year

Notes

1. Cumulative time from startup of the groundwater treatment system. Startup refers to the point at which contaminated groundwater from the extraction trench was being introduced into the treatment system. Startup occurred once the initial equipment/system testing with clean water was completed (March 13, 1997).
2. The monitoring period covered in this report is within this cumulative time division.
3. Due to the exceedences observed in the previous reporting periods, compliance samples are currently being collected on a monthly basis.

Table 2.3
Summary of Compliance Monitoring Data
Third Quarter 1999
American Chemical Service NPL Site
Griffith, Indiana

Event	Month 26	Month 27	Month 28	
Date	7/19/99	8/12/99	9/1/99	Effluent Limits
pH	8.1	8.3	7.5	6-9
TSS	ND	ND	ND	30
BOD	3.4 Q/J	ND	ND	30
Arsenic	2.3 B/	5.6 B	18.2	50
Beryllium	ND	ND	0.1 B/	NE
Cadmium	0.66 B/	1.0 B	0.76 B/	4.1
Manganese	52.8	221 /B	2220	NE
Mercury	ND	ND	ND	0.02 (w/DL = 0.64)
Selenium	ND	ND	ND	8.2
Thallium	ND	ND	ND	NE
Zinc	ND	ND	21.6	411
Benzene	ND	ND	ND	5
Acetone	25 B/	14 B/	4 B/JB	6,800
2-Butanone	2 J	3	ND	210
Chloromethane	ND	ND	ND	NE
1,4-Dichlorobenzene	ND	ND	ND	NE
1,1-Dichloroethane	ND	ND	ND	NE
cis-1,2-Dichloroethene	ND	ND	ND	70
Ethylbenzene	ND	ND	ND	34
Methylene chloride	0.7 B/	1 B/	3 B/JB	5
Tetrachloroethene	ND	ND	ND	5
Trichloroethene	ND	ND	ND	5
Vinyl chloride	ND	ND	ND	2
4-Methyl-2-pentanone	ND	ND	ND	15
bis (2-Chloroethyl) ether	ND	ND	ND	9.6
bis(2-Ethylhexyl) - phthalate	ND	ND	1 JB/UB	6
4 - Methylphenol	ND	ND	ND	34
Isophorone	ND	ND	ND	50
Pentachlorophenol	ND	ND	ND	1
PCBS	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)

Notes

Shaded cells indicate discharge exceedances

pH data is expressed in S.U.

TSS and BOD_5 data is expressed in mg/L

Metals, VOC, SVOC and PCB data is expressed in µg/L

Suffix Definitions

_/ = Data qualifier added by laboratory

/_ = Data qualifier added by data validator

B = Compound is also detected in the blank

J = Result is detected below the reporting limit and is an estimated concentration

Q = Sample was analyzed out of the recommended holding time

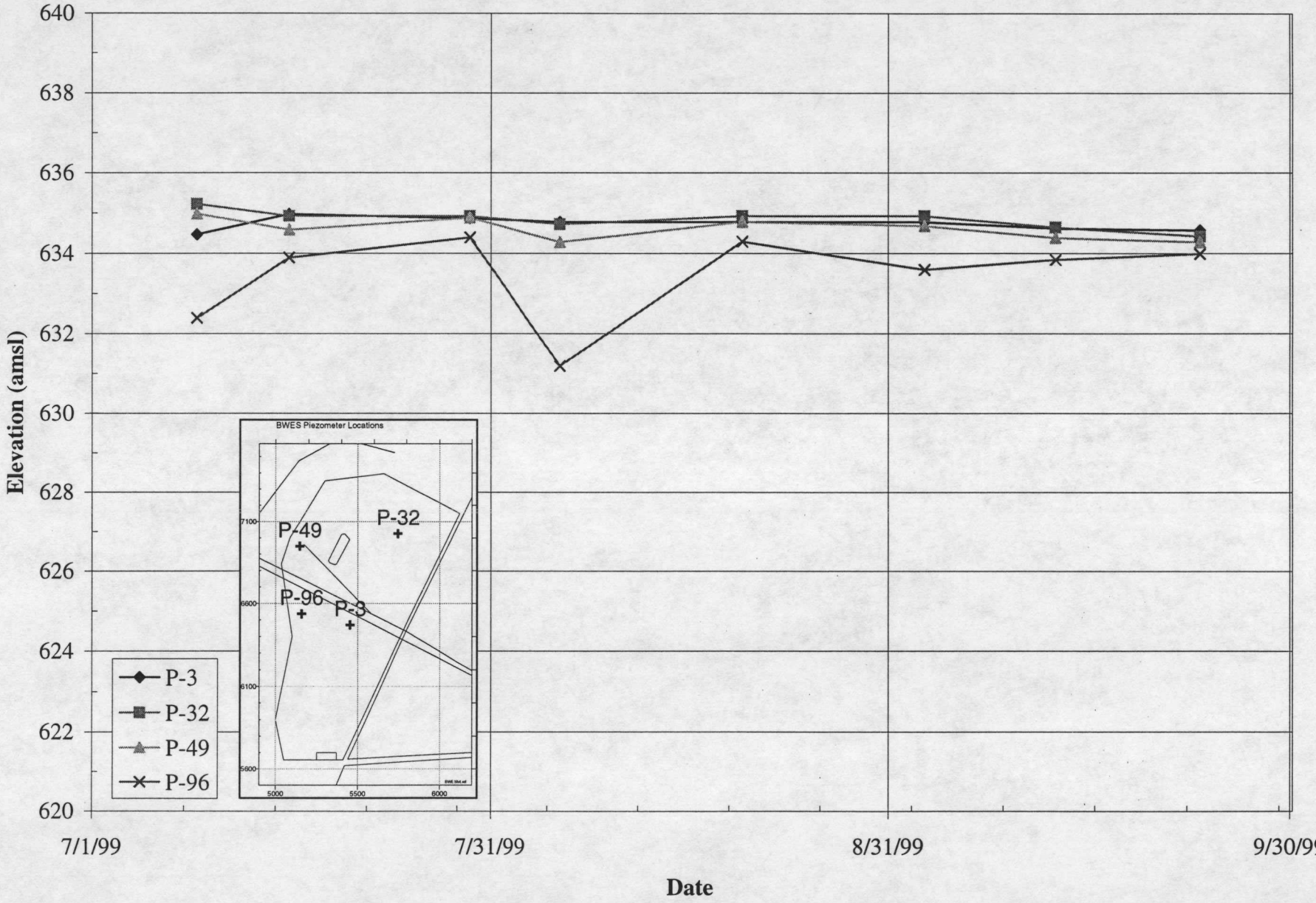
ND = Not detected

NE = No effluent limit established.

JB = Analyte is detected in the compliance sample below the reporting limit and is an estimated concentration and the compound is also detected in the method blank resulting in a potential high bias

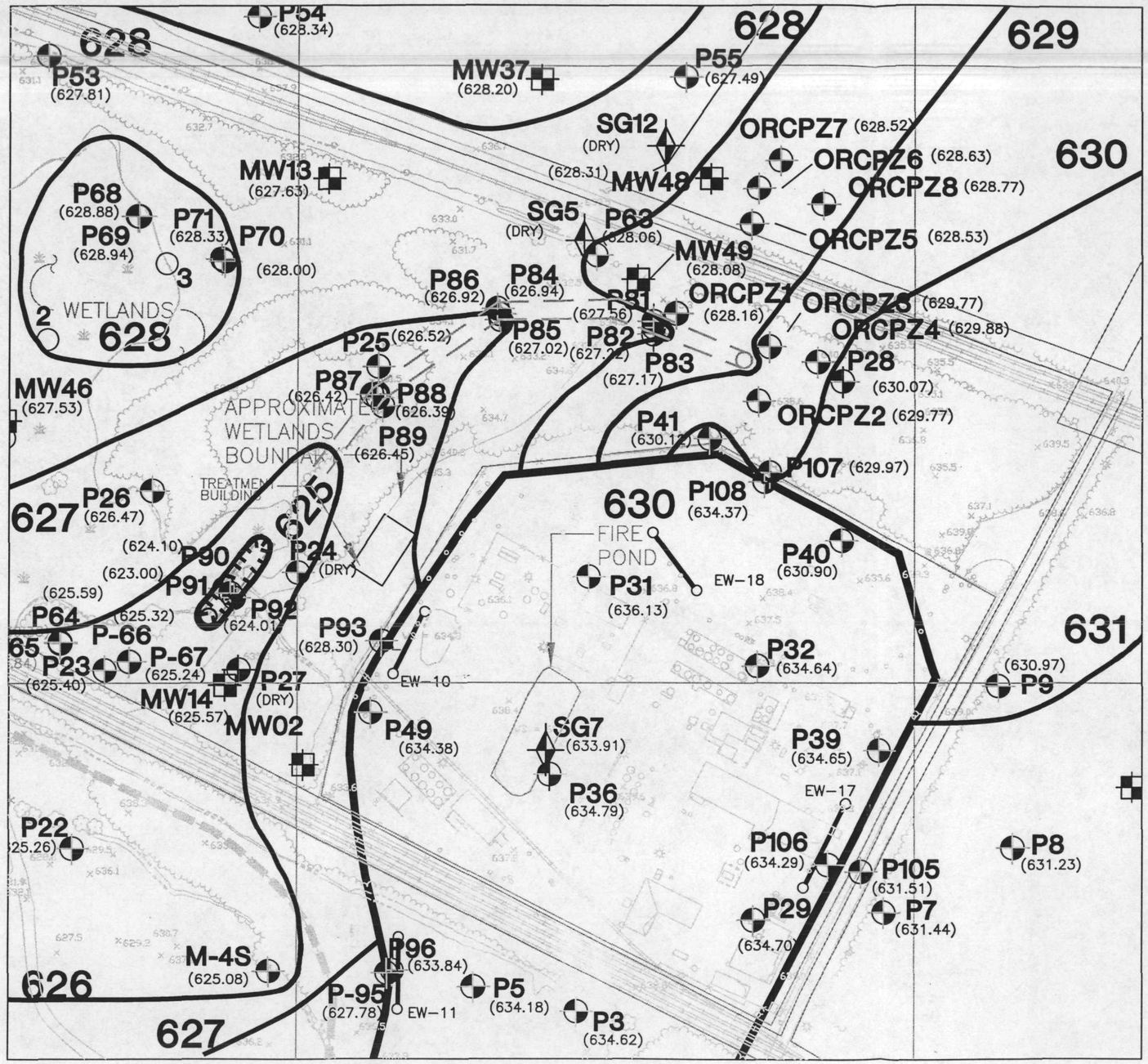
UB = Analyte is not detected at or above the indicated concentration due to blank contamination

FIGURES



RAA/JDP/RAA
J:\1252\057\271801/99_2qtr/
BWES levels 99_3qtr.xls

FIGURE 4.1
WATER LEVELS INSIDE BARRIER WALL



LEGEND

P106	PIEZOMETER LOCATION AND DESIGNATION
ORCPZ7	ORC PIEZOMETER LOCATION AND DESIGNATION
MW48	MONITORING WELL LOCATION AND DESIGNATION
SG12	STAFF GAUGE LOCATION AND DESIGNATION
(DRY)	WELL/STAFF GAUGE WAS DRY DURING MEASURING
(631.56)	GROUNDWATER ELEVATION
	BARRIER WALL
	GRIFFITH LANDFILL BOUNDARY
	PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
EW-11	BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
630	GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA

NOTE

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON SEPTEMBER 13, 1999

0 200 400

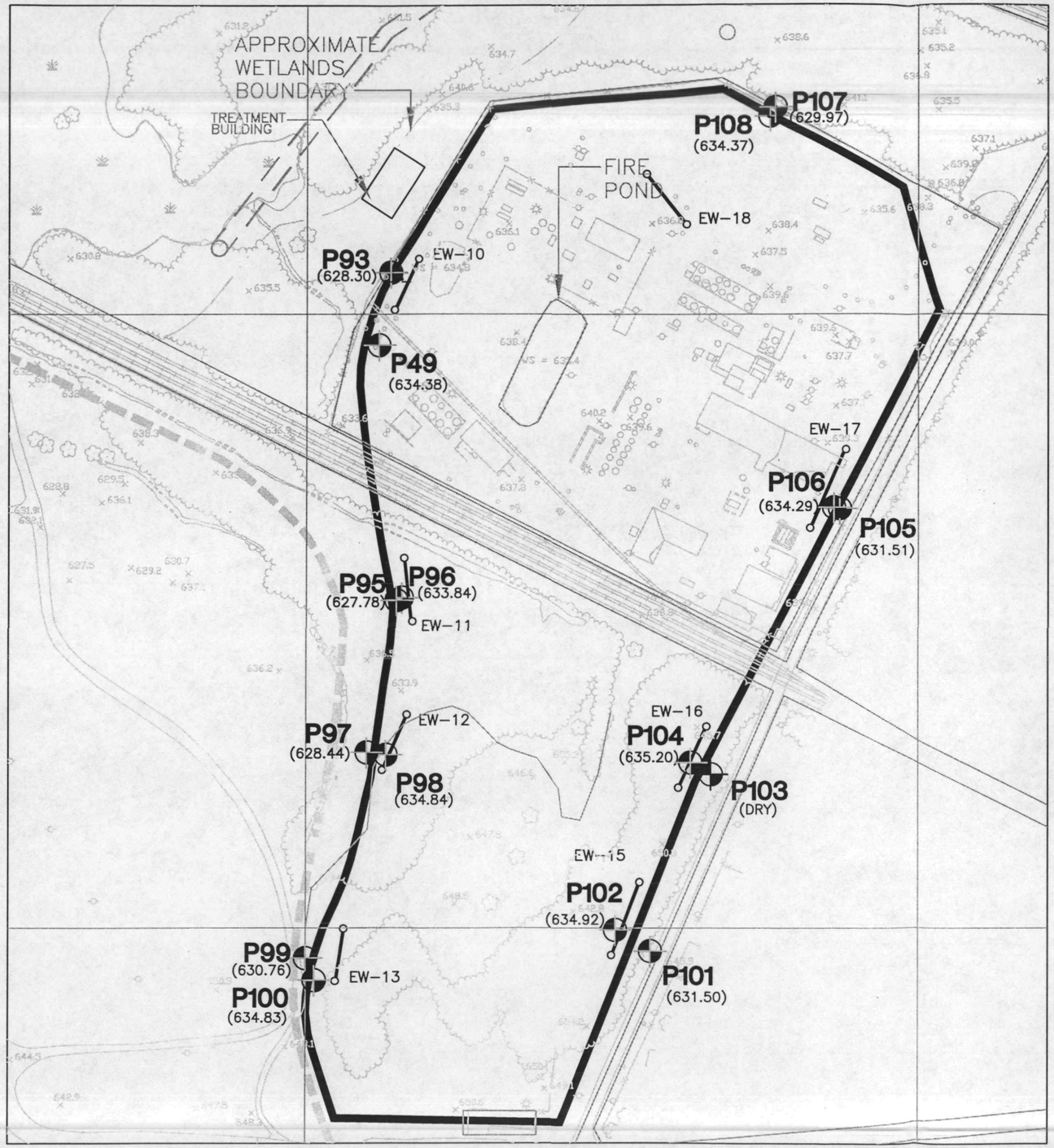
SCALE IN FEET

Plot Date:

FILE: J:/1252/057/271801/99_3dtr./pgcs_0999_esp.dwg

JOB No. 1252042

SCALE				FIGURE
AS SHOWN	MONTGOMERY WATSON Chicago, Illinois	AMERICAN CHEMICAL SERVICES, INC. GROUNDWATER TREATMENT SYSTEM GRIFFITH, INDIANA	PGCS GAUGING SEPTEMBER 1999	4.2



LEGEND

P106	PIEZOMETER LOCATION AND DESIGNATION
(638.12)	GROUNDWATER ELEVATION
	BARRIER WALL
	GRIFFITH LANDFILL BOUNDARY
	PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
EW-11	BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
(DRY)	PIEZOMETER WAS DRY AND COULD NOT BE MEASURED

NOTES

1. GROUNDWATER ELEVATIONS WERE MEASURED THE SITE ON SEPTEMBER 13, 1999

0 200 400

SCALE IN FEET

Plot Date:

FILE: J:/1232/057/271801/99_3qrt/BWES_0999.dwg

JOB No. MW Job No.

SCALE AS SHOWN	MONTGOMERY WATSON Chicago, Illinois	AMERICAN CHEMICAL SERVICES, INC. GROUNDWATER TREATMENT SYSTEM GRIFFITH, INDIANA	BWES GAUGING SEPTEMBER 1999	FIGURE 4.3

July 1999
Compliance Sample Analytical Data

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	951102	8.1	N/A

Reviewed by/ID#: Joe Bessile / 2381 Date: 7/27/99

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	951102	< 4	4

Reviewed by/ID#: Joe Basile 12381 Date: 7/27/99

Order # B9-07-477
08/04/99 10:10

TEST RESULTS BY SAMPLE

Sample: 01A 99-0549 EFFLUENT Collected: 07/19/99 Category: WATER

Test Description		Result	Limit	Units	Analyzed	By
BOD 5 DAY -	EPA 405.1	3.4 Q/J	2.0	5 DAY: mg/L	07/21/99	KG

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00002

Matrix (soil/water): WATER Lab Sample ID: 951102

Level (low/med): LOW Date Received: 07/20/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33.2	U		P
7440-36-0	Antimony	2.2	B		P
7440-38-2	Arsenic	2.3	B		P
7440-39-3	Barium	59.2			P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.66	B		P
7440-70-2	Calcium	55500			P
7440-47-3	Chromium	1.3	B		P
7440-48-4	Cobalt	1.3	B		P
7440-50-8	Copper	1.6	B		P
7439-89-6	Iron	194		*	P
7439-92-1	Lead	1.0	U		P
7439-95-4	Magnesium	14200			P
7439-96-5	Manganese	52.8			P
7439-97-6	Mercury	0.02	U		CV
7440-02-0	Nickel	10			P
7440-09-7	Potassium	7440		E	P
7782-49-2	Selenium	3.1	U		P
7440-22-4	Silver	0.30	U		P
7440-23-5	Sodium	146000			P
7440-28-0	Thallium	4.1	U		P
7440-62-2	Vanadium	0.76	B		P
7440-66-6	Zinc	1.1	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Duplicate (EFFLUENTD)

1A

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00002

Matrix: (soil/water) WATER Lab Sample ID: 951102

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN051102A56.D

Level: (low/med) LOW Date Received: 07/20/99

% Moisture: not dec. _____ Date Analyzed: 07/26/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	Bromomethane	0.5	U
75-01-4	Vinyl Chloride	0.5	U
75-00-3	Chloroethane	0.5	U
75-09-2	Methylene Chloride	0.7	B
75-35-4	1,1-Dichloroethene	0.5	U
75-34-3	1,1-Dichloroethane	0.5	U
67-66-3	Chloroform	0.5	U
107-06-2	1,2-Dichloroethane	0.5	U
71-55-6	1,1,1-Trichloroethane	0.5	U
56-23-5	Carbon Tetrachloride	0.5	U
75-27-4	Bromodichloromethane	0.5	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U
79-01-6	Trichloroethene	0.5	U
124-48-1	Dibromochloromethane	0.5	U
79-00-5	1,1,2-Trichloroethane	0.5	U
71-43-2	Benzene	0.5	U
10061-02-6	trans-1,3-Dichloropropene	0.5	U
75-25-2	Bromoform	0.5	U
127-18-4	Tetrachloroethene	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U
108-88-3	Toluene	0.5	U
108-90-7	Chlorobenzene	0.5	U
100-41-4	Ethylbenzene	0.5	U
100-42-5	Styrene	0.5	U
78-87-5	1,2-Dichloropropane	0.5	U
74-87-3	Chloromethane	0.5	U
75-15-0	Carbon disulfide	0.5	U
67-64-1	Acetone	25	B
108-10-1	4-Methyl-2-pentanone	2	U
591-78-6	2-hexanone	2	U
78-93-3	2-butanone	2	J
156-60-5	trans-1,2-Dichloroethene	0.5	U
156-59-2	cis-1,2-Dichloroethene	0.5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00002

Matrix: (soil/water) WATER Lab Sample ID: 951102

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN051102A56.D

Level: (low/med) LOW Date Received: 07/20/99

% Moisture: not dec. _____ Date Analyzed: 07/26/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1330-20-7	Xylene (total)	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00002

Matrix: (soil/water) WATER Lab Sample ID: 951102

Sample wt/vol: 990 (g/mL) ML Lab File ID: GH051102C64

Level: (low/med) LOW Date Received: 07/20/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:07/21/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/23/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-N-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00002

Matrix: (soil/water) WATER Lab Sample ID: 951102

Sample wt/vol: 990 (g/mL) ML Lab File ID: GH051102C64

Level: (low/med) LOW Date Received: 07/20/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:07/21/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/23/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
121-14-2	2,4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-c,d)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

Data Analysis Technologies, Inc.
6385 Shier Rings Rd.
Dublin, OH 43016

Sample Analysis Certificate

Client: CompuChem

Client Sample ID: Effluent

Sample Volume: 1000 mls

Extract Volume: 1.0 ml

Date Sampled: 7/19/99

Date Received: 7/22/99

Lab Sample ID: 0799045-1

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	0.1	7/22/99	7/29/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	200	126	ug	63%

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00002

Matrix: (soil/water) WATER Lab Sample ID: 951102

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 07/20/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:07/21/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 07/23/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	0.50	U
11096-82-5	Aroclor-1260	0.50	U

August 1999
Compliance Sample Analytical Data

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	954270	8.3	N/A

Reviewed by/ID#: _____ / _____ Date: _____

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	954270	< 4	4

Reviewed by/ID#: _____ / _____ Date: 8/24/94

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA INC. 5752

2700 GATEWAY CENTRE BLVD, #625
MORRISVILLE, NC 27560

Project:
Project Name: ACS-89
Sampler:

Lab Number: 99-A123111
Sample ID: EFFLUENT
Sample Type: Water
Site ID:

Date Collected: 8/12/99
Time Collected: 2:00
Date Received: 8/14/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
BOD Set Up						8/14/99	16:10			
Biochemical Oxygen Demand	ND	mg/l	6.0	6.0	1	8/19/99	17:00	M.Shockley	405.1	5261

ND = Not detected at the report limit.

Report Approved By: Michael H. Dunn Report Date: 8/20/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: 387

000003

COPY 1

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00004

Matrix (soil/water): WATER Lab Sample ID: 954270

Level (low/med): LOW Date Received: 08/13/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	73.5	B		P	
7440-36-0	Antimony	1.8	U		P	
7440-38-2	Arsenic	5.6	B		P	
7440-39-3	Barium	103			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	1.0	B		P	
7440-70-2	Calcium	86700			P	B
7440-47-3	Chromium	0.90	U		P	
7440-48-4	Cobalt	0.73	B		P	
7440-50-8	Copper	1.1	U		P	
7439-89-6	Iron	18.9	U		P	
7439-92-1	Lead	1.0	U		P	
7439-95-4	Magnesium	15400			P	
7439-96-5	Manganese	221			P	B
7439-97-6	Mercury	0.02	U		CV	
7440-02-0	Nickel	9.3			P	
7440-09-7	Potassium	8240		E	P	
7782-49-2	Selenium	3.1	U		P	
7440-22-4	Silver	0.30	U		P	
7440-23-5	Sodium	110000			P	B
7440-28-0	Thallium	4.1	U		P	
7440-62-2	Vanadium	1.4	B		P	
7440-66-6	Zinc	1.1	U		P	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Duplicate (EFFLUENTD)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00004

Matrix: (soil/water) WATER Lab Sample ID: 954270

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN054270A57.D

Level: (low/med) LOW Date Received: 08/13/99

% Moisture: not dec. _____ Date Analyzed: 08/26/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	Bromomethane	0.5	U
75-01-4	Vinyl Chloride	0.5	U
75-00-3	Chloroethane	0.5	U
75-09-2	Methylene Chloride	1	B
75-35-4	1,1-Dichloroethene	0.5	U
75-34-3	1,1-Dichloroethane	0.5	U
67-66-3	Chloroform	0.5	U
107-06-2	1,2-Dichloroethane	0.5	U
71-55-6	1,1,1-Trichloroethane	0.5	U
56-23-5	Carbon Tetrachloride	0.5	U
75-27-4	Bromodichloromethane	0.5	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U
79-01-6	Trichloroethene	0.5	U
124-48-1	Dibromochloromethane	0.5	U
79-00-5	1,1,2-Trichloroethane	0.5	U
71-43-2	Benzene	0.5	U
10061-02-6	trans-1,3-Dichloropropene	0.5	U
75-25-2	Bromoform	0.5	U
127-18-4	Tetrachloroethene	0.5	U
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U
108-88-3	Toluene	0.5	U
108-90-7	Chlorobenzene	0.5	U
100-41-4	Ethylbenzene	0.5	U
100-42-5	Styrene	0.5	U
78-87-5	1,2-Dichloropropane	0.5	U
74-87-3	Chloromethane	0.5	U
75-15-0	Carbon disulfide	0.5	U
67-64-1	Acetone	14	B
108-10-1	4-Methyl-2-pentanone	2	U
591-78-6	2-hexanone	2	U
78-93-3	2-butanone	3	
156-60-5	trans-1,2-Dichloroethene	0.5	U
156-59-2	cis-1,2-Dichloroethene	0.5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00004

Matrix: (soil/water) WATER Lab Sample ID: 954270

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN054270A57.D

Level: (low/med) LOW Date Received: 08/13/99

% Moisture: not dec. _____ Date Analyzed: 08/26/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1330-20-7	Xylene (total)	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00004

Matrix: (soil/water) WATER Lab Sample ID: 954270

Sample wt/vol: 1050 (g/mL) ML Lab File ID: GH054270B68

Level: (low/med) LOW Date Received: 08/13/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/16/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-N-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	19	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	19	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00004

Matrix: (soil/water) WATER Lab Sample ID: 954270

Sample wt/vol: 1050 (g/mL) ML Lab File ID: GH054270B68

Level: (low/med) LOW Date Received: 08/13/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/16/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	19	U
100-02-7	4-Nitrophenol	19	U
121-14-2	2,4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	19	U
534-52-1	4,6-Dinitro-2-methylphenol	19	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	19	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-c,d)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00004

Matrix: (soil/water) WATER Lab Sample ID: 954270

Sample wt/vol: 1050 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/13/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/16/99

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/27/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.48	U
11104-28-2	Aroclor-1221	0.48	U
11141-16-5	Aroclor-1232	0.95	U
53469-21-9	Aroclor-1242	0.48	U
12672-29-6	Aroclor-1248	0.48	U
11097-69-1	Aroclor-1254	0.48	U
11096-82-5	Aroclor-1260	0.48	U

Data Analysis Technologies, Inc.
6385 Shier Rings Rd.
Dublin, OH 43016

Sample Analysis Certificate

Client: CompuChem

Client Sample ID: Effluent

Sample Volume: 1000 mls

Extract Volume: 1.0 ml

Date Sampled: 8/12/99

Date Received: 8/14/99

Lab Sample ID: 0899023-1

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	0.1	8/14/99	8/20/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	200	101.2	ug	51%

September 1999
Compliance Sample Analytical Data

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	957700	7.5	N/A

Reviewed by/ID#: _____ Date: _____

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	957700	< 4	4

Reviewed by/ID#: _____ Date: _____

TRITEST, INC.
3909 Beryl Road
Raleigh, NC 27607
Telephone: (919) 834-4984
Fax: (919) 834-6497
NC/WW Cert.#: 067

L a b o r a t o r y R e p o r t

--- Prepared for ---

Mr. Charles Cabaniss
Test America, Inc.
2700 Gateway Centre
Suite 625
Morrisville, NC 27560

Project ID: 01
Project Info: WW / ACS-89 / 99-0679

Report Date: 9/09/99
Date Received: 9/02/99

Work Order #: 9909-00061

Cust. Code: HY9699
Cust. P.O.#:

No.	Sample ID	Date Sampled	Time Sampled	Matrix	Condition
01	ACS-89 EFF. / 99-0679	9/01/1999	15:00	WW	4±2°C

Test Performed	Method	Results	Tech	Date Analyzed	Qual
Biochemical Oxygen Demand	EPA 405.1	<2.0 mg/L	TP	9/03/99	

Report certified by:

for Tritest, Inc.

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: SW-846

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00009

Matrix (soil/water): WATER Lab Sample ID: 957700

Level (low/med): LOW Date Received: 09/02/99

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	18.2			P
7440-41-7	Beryllium	0.10	B		P
7440-43-9	Cadmium	0.76	B		P
7439-96-5	Manganese	2220			P
7439-97-6	Mercury	0.02	U		CV
7782-49-2	Selenium	3.1	U		P
7440-28-0	Thallium	4.1	U		P
7440-66-6	Zinc	21.6			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00009

Matrix: (soil/water) WATER Lab Sample ID: 957700

Sample wt/vol: 25.0 (g/mL) ML Lab File ID: CN057700B52.D

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: not dec. _____ Date Analyzed: 09/15/99

GC Column:EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-01-4	Vinyl Chloride	0.5	U
75-09-2	Methylene Chloride	3	B/JB
75-34-3	1,1-Dichloroethane	0.5	U
79-01-6	Trichloroethene	0.5	U
71-43-2	Benzene	0.5	U
127-18-4	Tetrachloroethene	0.5	U
100-41-4	Ethylbenzene	0.5	U
106-46-7	1,4-Dichlorobenzene	0.5	U
74-87-3	Chloromethane	0.5	U
67-64-1	Acetone	4	B/JB
108-10-1	4-Methyl-2-pentanone	2	U
78-93-3	2-butanone	2	U
156-59-2	cis-1,2-Dichloroethene	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00009

Matrix: (soil/water) WATER Lab Sample ID: 957700

Sample wt/vol: 1020 (g/mL) ML Lab File ID: GH057700A66

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/03/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	Bis(2-chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-N-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	Bis(2-chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	20	U
131-11-3	Dimethylphthalate	10	U
606-20-2	2,6-Dinitrotoluene	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SDG No.: 00009

Matrix: (soil/water) WATER Lab Sample ID: 957700

Sample wt/vol: 1020 (g/mL) ML Lab File ID: GH057700A66

Level: (low/med) LOW Date Received: 09/02/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/02/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/03/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
121-14-2	2,4-Dinitrotoluene	10	U
132-64-9	Dibenzofuran	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
117-81-7	bis(2-ethylhexyl)Phthalate	1	JB/UB
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-c,d)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

Data Analysis Technologies, Inc.
6385 Shier Rings Rd.
Dublin, OH 43016

Sample Analysis Certificate

Client: CompuChem

Client Sample ID: Effluent

Sample Volume: 1000 mls

Extract Volume: 1.0 ml

Date Sampled: 9/1/99

Date Received: 9/2/99

Lab Sample ID: 0999007-1

Matrix: Aqueous

Target Analyte	Result	Units	DL	Prep Date	Analysis Date
Pentachlorophenol	ND	ug/L	0.1	9/8/99	9/23/99

Surrogate:	Amount Spiked	Amount Found	Units	%Rec.
2,4,6-Tribromophenol	11.4	7.99	ug	70.1%

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: 501244

Lab Code: COMPU Case No.: 34442 SAS No.: SDG No.: 00009

Matrix: (soil/water) WATER Lab Sample ID: 957700

Sample wt/vol: 1010 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N)___ Date Received: 09/02/99

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:09/03/98

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/05/99

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.99	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	0.50	U
11096-82-5	Aroclor-1260	0.50	U